

IN THE CLAIMS

1. (currently amended) In a Water spraying system of an air intake duct of a piston engine, especially for the humidification of the intake air of a for the piston engine to reduce nitrogen oxide emissions, said system the improvements comprising:

at least one nozzle (9,10, 11,12, 13) for spraying a mist of an aqueous liquid ~~mist~~ into the air intake duct (2);

means for adjusting a temperature of the aqueous liquid for the spraying; and

~~means for conveying the liquid to be sprayed to the nozzle, characterized in that the system comprises means for accomplishing the injection of a spraying of the mist of the aqueous liquid mist to at least one point in the air intake duct (2) dependiengce on the at least one of load and/or, speed of rotation and/or temperature of the engine.~~

2. (currently amended) ~~S~~Water spraying system according to claim 1, characterized in that the amount of aqueous liquid to be mist sprayed into the air intake duct (2) is distributed ~~in the system to by several of the~~ nozzles (9,10, 11,12, 13).

3. (currently amended) ~~S~~Water spraying system according to claim 1, characterized in that the amount of aqueous liquid to be mist sprayed is at least one of distributed in the air intake duct (2) over an larger area to achieve an optimal vaporization, preferably or to points with a higher temperature ~~and/or air flow or to than~~ their vicinity for optimizing vaporization.

4. (currently amended) ~~S~~Water spraying system according to claim 1, characterized in that ~~the~~ a number of the nozzles (9,10, 11,12, 13) ~~in the system~~ is adapted according to ~~the~~ required an amount of liquid to be sprayed.

5. (currently amended) Spraying system according to claim 1, characterized ~~in that the~~ by means for adapting at least one of a point of injection and/or direction of injection of the spray of ~~liquid the~~ mist is adapted according to ~~the required~~ an amount of the aqueous liquid to be sprayed.

6. (previously presented) System according to claim 1, characterized in that the system comprises nozzles (9,10,11,12, 13) having different properties, the number and/or type of nozzles spraying being varied according to the amount of liquid required.

7. (previously presented) System according to claim 1, characterized in that the several nozzles (9-13) in the system are arranged on the same mounting frame (6,7).

8. (previously presented) System according to claim 1, characterized in that the system comprises a regulating apparatus, by means of which the injection action of at least some of the nozzles (9-13) can be con-trolled.

9. (previously presented) System according to claim 1, characterized in that the system comprises at least one valve element (13, 14), by means of which the liquid flow passage leading to one of the nozzles (9-13) is adjusted and/or opened/closed.

10. (previously presented) System according to claim 1, characterized in that the system comprises a regulating system, by means of which the pressure in at least one supply pipe (17) leading to the nozzles is kept at least nearly constant or at a predetermined level independently of the output of the pump.

11. (previously presented) System according to claim 1, characterized in that the system comprises an output regulating pump unit, by means of which the pressure is regulated by pressure control so that the pressure in at least one supply pipe (17) leading to a nozzle is constant.

12. (previously presented) System according to claim 1, characterized in that the system comprises a control system comprising a constant- output pump and controlling the pressure by means of a valve system to maintain a constant pressure in at least one supply pipe leading to a nozzle.

13. (previously presented) System according to claim 1, characterized in that the system further comprises a system for cleaning the nozzles and/or keeping the nozzles clean.

14. (previously presented) System according to claim 1, characterized in that the pressure in the liquid supply piping is 10-300 bar.

15. (previously presented) System according to claim 1, characterized in that the droplet size of the water mist is typically below 200 micrometers.

16. (currently amended) System according to claim 1, characterized ~~in that a second~~ by means for supplying at least one of a pressure medium, typically a gas, preferably or air, is supplied to the at least one nozzle.

17. (currently amended) Apparatus according to claim 1, characterized ~~in that the apparatus comprises~~ by means for controlling the adjusting of the temperature of the liquid to be injected.

18. (new) Water spraying system for the humidification of the intake air of a piston engine to reduce nitrogen oxide emissions, said system comprising at least one nozzle for spraying an aqueous liquid mist into the air intake duct and means for conveying the liquid to be sprayed to the nozzle wherein the system comprises means for accomplishing the injection of a spray of aqueous liquid mist with an adjustable temperature to at least one point in the air intake duct depending on the load and/or speed of rotation and/or temperature of the engine.